All aboard for Cleveland – Developing Rail Transportation in Cuyahoga Valley National Park

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Executive summary

Cuyahoga Valley National Park (CVNP) and Cuyahoga Valley Scenic Railroad (CVSR) have developed one of the most innovative and successful partnerships for providing transportation in national parks. Over the past 15 years, CVNP and CVSR have worked together to make excursion passenger rail service a key component of transportation to, through, and within CVNP and the Ohio & Erie Canalway. The Ohio & Erie Canalway is one of 24 National Heritage Areas. It is a 110-mile district in Northeast Ohio designated by Congress in 1996 to preserve and protect the natural, cultural, and industrial heritage of the region. Today, CVSR is an important part of the Canalway's intermodal transportation network providing passenger rail excursion services on a 51-mile route that extends from Rockside Road in Independence, OH to Canton, OH.

The next critical step of CVSR's development is linking excursion passenger rail service to downtown Cleveland. This will complete the rail transportation linkages in the Ohio & Erie Canalway and allow CVSR to provide service to and through CVNP and Ohio & Erie Canalway from 3 major cities in the region; Cleveland, Akron and Canton.

The National Park Foundation selected the author to assist CVNP and CVSR in rail development efforts through the Foundation's Transportation Scholar Program. The assignment was for 9 months between July 2004 and April 2005. This report provides summaries, progress reports and recommendations on all tasks accomplished and initiated during the scholar's assignment. The recommendations presented in this report are based on the scholar's research activities, personal observations and discussions with

numerous people during the assignment. While the majority of efforts were for the Cleveland Extension project efforts, several other rail related initiatives were researched and are presented in this report as well.

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0. Preface

This research has been conducted under the National Park Transportation Scholars program. The program is made possible by a grant from the National Park Foundation, which is funded, in part, by the Ford Motor Company. Transportation Scholars are placed in National Parks that have requested assistance on transportation related projects, with the goal of: "… supporting and promoting sustainable transportation solutions that help preserve park resources and, at the same time, enhancing the visitor experience" (National Park Foundation, 2004).

Jennifer McMahon, Partnership Coordinator at Cuyahoga Valley National Park (CVNP), specifically requested a scholar to help CVNP and Cuyahoga Valley Scenic Railroad (CVSR) in an effort to extend CVSR passenger rail service an additional 8 miles into downtown Cleveland (the Cleveland Extension project).

> There are many challenges associated with this project that will require very sophisticated level of analysis. A Transportation Scholar would work with the NPS, CVSR, and many organizations, businesses, and city officials in the Cleveland community to analyze the legal, institutional, political, operational, and financial challenges associated with extending excursion passenger rail service from the national park to downtown Cleveland. Inherent in this analysis would be the examination of issues such as right-of-way ownership and associated liability and insurance costs, frequency of current track usage and potential shared use of existing track for both passenger and freight service, and scheduling and cost of service, to name a few. The Scholar would also identify and devise innovative solutions to overcome the obstacles associated with this project. (McMahon, 2004).

This report is the output of the 9-month Transportation Scholar assignment in the park. To learn more about the National Parks Transportation Scholars Program, please visit:

http://www.nationalparks.org/proudpartners/partner_ford_sch.shtml

1. Introduction

Cuyahoga Valley National Park (CVNP) and Cuyahoga Valley Scenic Railroad (CVSR) have developed one of the most innovative and successful partnerships for providing transportation in national parks. Over the past 15 years, CVNP and CVSR have worked together to make excursion passenger rail service a key component of transportation to, through, and within CVNP and Ohio & Erie Canalway. The Ohio & Erie Canalway is one of 24 National Heritage Areas. It is a 110-mile district in Northeast Ohio designated by Congress in 1996 to preserve and protect the natural, cultural, and industrial heritage of the region. The importance of CVSR service to the Canalway was best described in *The Ohio & Erie Canal National Heritage Corridor (now the Ohio & Erie Canalway) Management Plan* [1], which identified CVSR as a critical link in a regional transportation system that provides multi-modal journeys throughout the Canalway.

The motivation for writing this report is to capture the momentum created by the progress in the Cleveland Extension project during the last year and provide a document to assist the stakeholders in their continuing efforts. This report provides summaries, progress reports and recommendations on all tasks accomplished or initiated during the scholar's assignment. The recommendations presented in this report are based on the scholar's research activities, personal observations and discussions with numerous people during the assignment. Some recommendations are specifically directed to the Cleveland Extension project, while others deal with other initiatives facilitating continuous development of rail transportation in the Cuyahoga Valley and the Ohio & Erie Canalway.

The audience for this report includes CVNP and CVSR, other partnering organizations and stakeholders involved in the project, future consultants, and anyone else interested in the development of passenger rail service in CVNP and the Ohio & Erie Canalway. Any other national park or community considering a new passenger rail service may find topics covered in this document also applicable, given that the initial steps for passenger rail development tend to share similar trends and challenges, such as liability concerns and operational issues between freight and passenger traffic.

1.1. Research approach

This report attempts to describe the importance of CVSR service and the Cleveland Extension project and describes a summary of the progress during the scholar's assignment. To do this, the report tries to respond to following questions:

1. How has rail transportation developed in Cuyahoga Valley and how does it fit into the regional transportation scheme?
2. What is the current status of the Cleveland Extension project?
3. What are the recommendations for future activities in the Cleveland Extension project?
4. What other initiatives have the potential to improve passenger rail operations in the valley?

To answer these questions, this report first describes the development and current status of rail operations in Chapter 2. Chapter 3 examines key accomplishments in the Cleveland Extension project during the scholar's assignment in the park and provides the framework for recommendations for next steps, which are presented in Chapter 4.

Chapter 5 outlines research topics unrelated to the Cleveland Extension project and provides ideas and recommendations for future work in these topics. Finally, Chapter 6 will summarize the findings and present the scholar's conclusions on the assignment.

In addition to the text provided in the main body of this document, several memoranda and topic specific documents are included in the appendices of this report as appropriate.

2. Development of alternative transportation in Cuyahoga Valley

The history of railroading in the Cuyahoga Valley dates back to the opening of the Valley Railway in 1880. The initial passenger operations ran uninterrupted until 1963. The second era of railroading started in 1972, when CVSR was incorporated as a 501(c)3 not-for-profit organization. The real boost for passenger rail service occurred in 1987, when the National Park Service (NPS) purchased 26 miles of track through the valley from CSX Transportation. In 1989, CVNP and CVSR signed their first Cooperative Agreement and since then, the number of train passengers has increased over 500% to reach 100,000 annual passengers (see Figure 1, CVSR Annual Ridership).

The rest of this chapter provides an overview of some key features of the system today. A more thorough description of the development of rail service and of today's operations can be found in *Progress & Promise: Developing Excursion Passenger Rail Service in the Ohio & Erie Canalway* (see Appendix A).

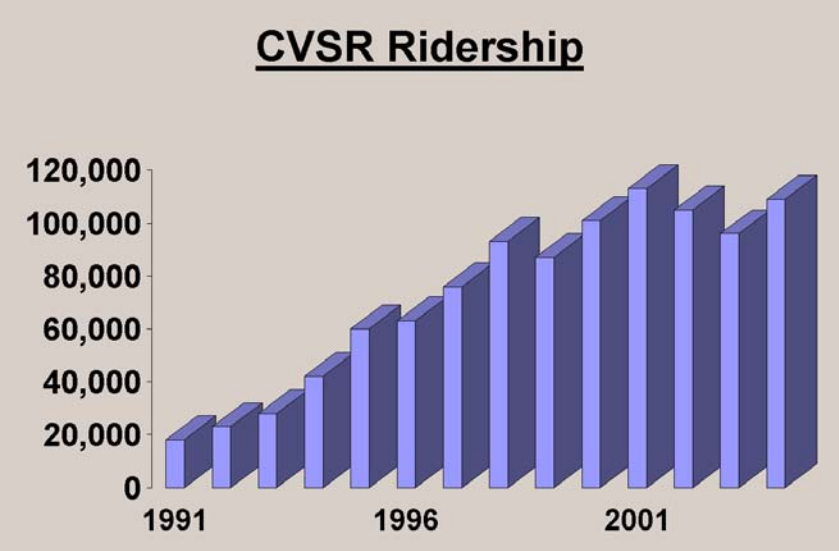

Figure 1. CVSR Annual Ridership

2.1. CVSR today

CVSR is a 501(c)3 not-for-profit organization, which currently employs 27 people. In addition, over 200 volunteers provide annually 22,000 hours of service to the railroad.

CVSR's mission statement is presented in Figure 2.

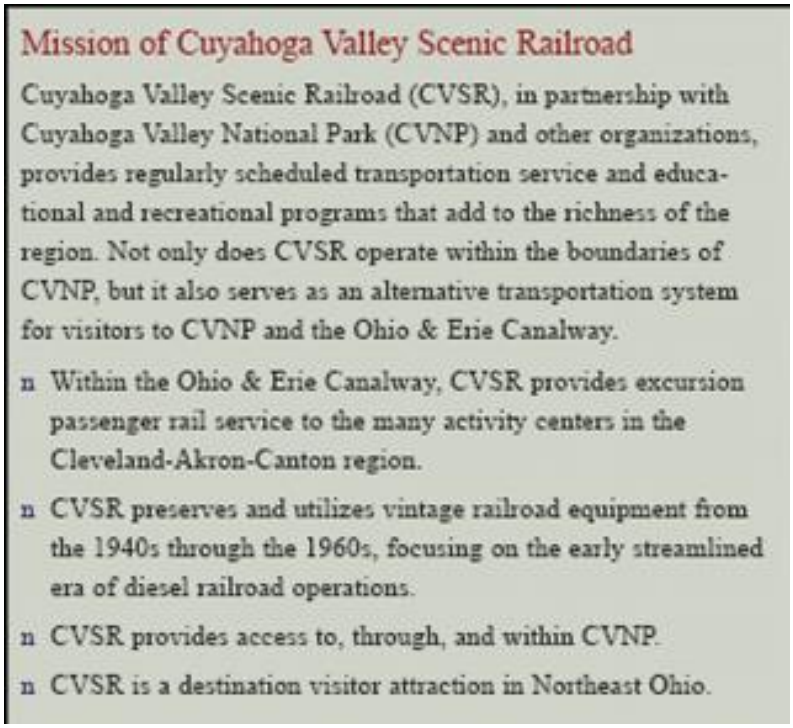

Figure 2. CVSR Mission Statement

CVSR provides passenger rail service 220 days per year with its 1940s-1950s vintage rail equipment. In addition to regularly scheduled excursions, CVSR offers educational field trips, special event trains, such as *The Polar Express*™, and *Thomas the Tank Engine*™, and private charters. The annual operating budget fluctuates between $2.0-2.7 million.

2.2. Completed rail transportation system

Today, CVSR operates on a 51-mile route that extends from Rockside Road in Independence, OH to Canton, OH. The trackage include 26 miles within CVNP and an additional 25 miles, south of the park boundary, between Akron and Canton, OH. Figure 3 presents the current route map with station locations.

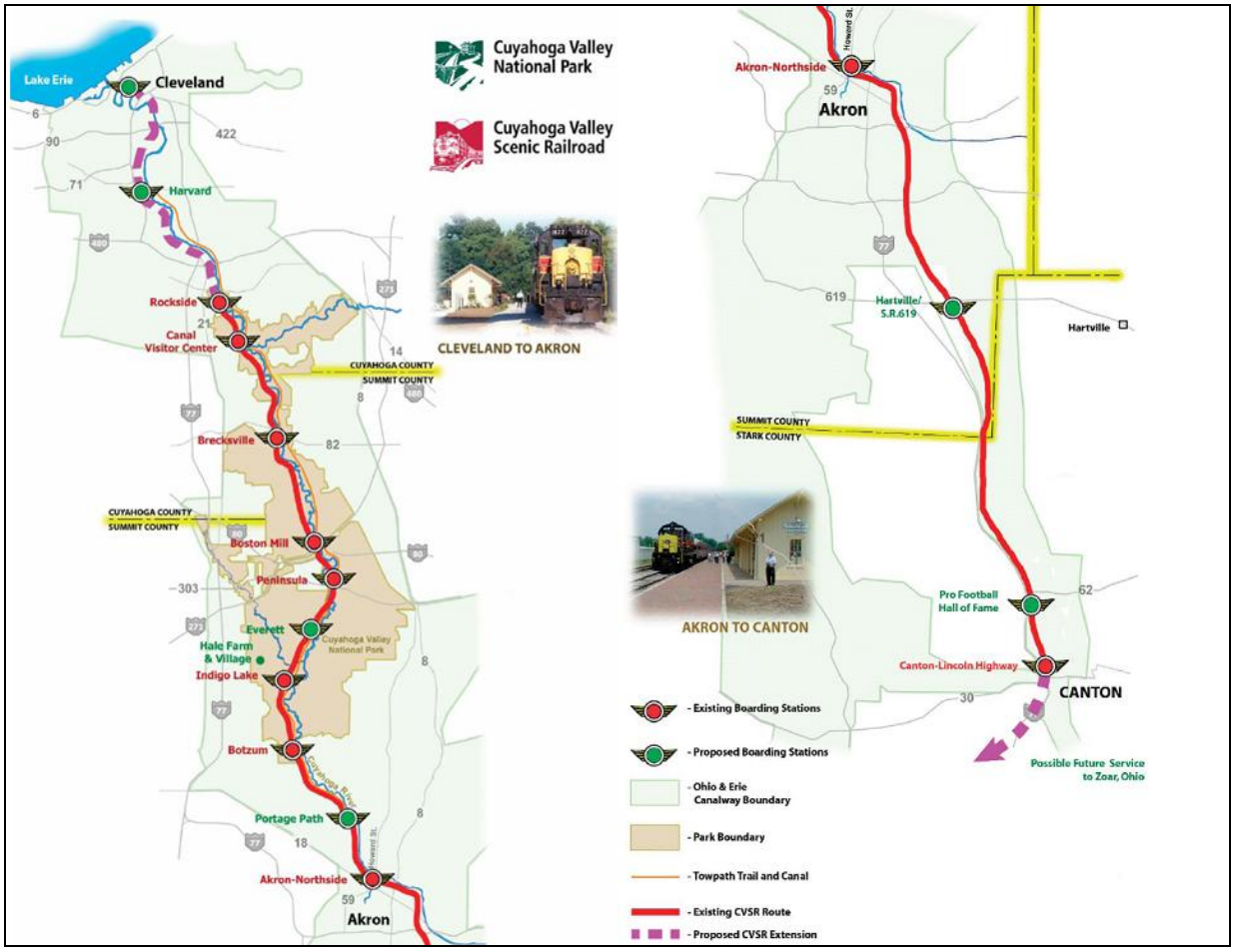

Figure 3. CVSR Route Map and Station Locations

CVSR, in cooperation with CVNP, has developed into a significant transportation service in the valley. When the service is extended to downtown Cleveland, the system will have achieved its goal to:

1. Function as a regional transportation system between three cities: Cleveland, Akron and Canton
2. Provide access from the three cities to, through and within CVNP
3. Provide transportation to venues and attractions along the Ohio & Erie Canalway.

2.3. Alternative transportation in Ohio & Erie Canalway

To date, travel through the Ohio & Erie Canalway is achieved through three transportation linkages:

- 110 miles of Canalway Ohio National Scenic Byway
- 70 miles of restored Ohio & Erie Canal Towpath Trail
- 51 miles of CVSR railroad

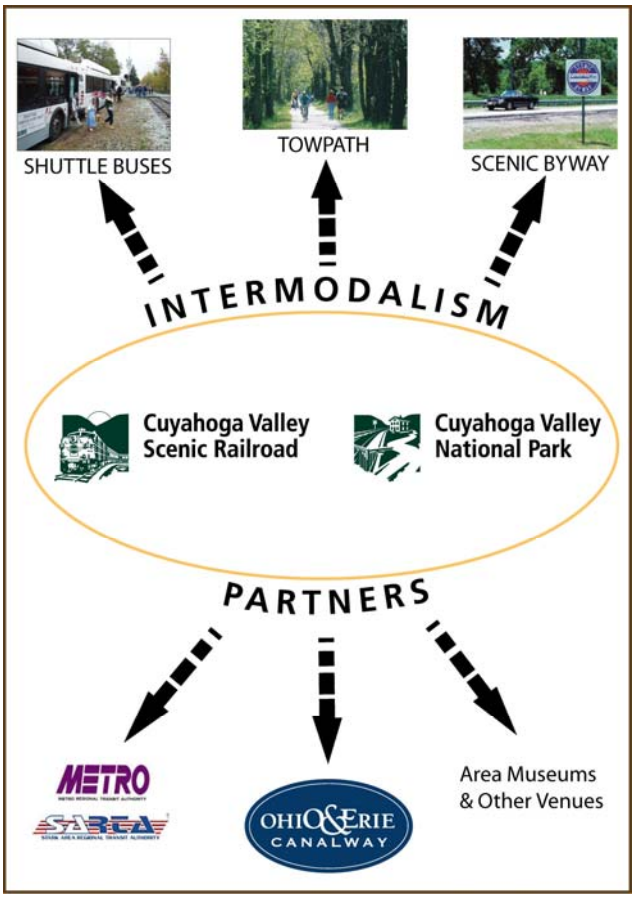

Figure 4. Ohio & Erie Canalway Transportation System

Figure 4 presents the transportation system in the Ohio & Erie Canalway. Intermodal opportunities are available throughout the Canalway. Visitors to CVNP can hike or bike on the Towpath Trail in one direction and return via railroad. In addition, train

passengers arriving in Akron or Canton are taken to local venues by bus. The development of alternative transportation services has relied heavily on the extensive network of partnerships between numerous agencies. Some of the key partners are CVSR, CVNP, the Ohio & Erie Canal Association, local transportation agencies in Akron (MetroRTA) and Canton (SARTA), and area museums and venues.

Together with the Towpath Trail and the Scenic Byway, CVSR provides access to CVNP and other park systems and to heritage venues along the route in Akron and Canton. In addition, riding on the railroad allows visitors to experience part of the transportation legacy that helped build northeast Ohio.

3. The Cleveland Extension project

The next critical step of CVSR's development is linking excursion passenger rail service to downtown Cleveland. This will complete the rail transportation linkages in the Ohio & Erie Canalway and allow CVSR to provide service to and through CVNP and Ohio & Erie Canalway from 3 major cities in the region; Cleveland, Akron and Canton. Several challenges must be addressed before the Cleveland Extension can be completed. These range from traveling through a highly industrial landscape interspersed with existing freight rail operations to addressing the cost and mechanics of upgrading the currently insufficient infrastructure to accommodate passenger rail operations. The following sections provide the history and overview of the project activities to date, followed by the recommendations for next steps presented in Chapter 4.

3.1. History

The extension to downtown Cleveland is not a new idea. Serious but unsuccessful efforts were made in the 1990s to make the connection between the park and downtown Cleveland. Table 1. below presents some key milestones to date.

Table 1. The Cleveland Extension Project History

Year	Activity
1993	CVSR Master Plan published
1993-1995	Negotiations with CSX Transportation and LTV Steel
1995	Demonstration train run to Tower City in downtown Cleveland
1997	CSX discontinues negotiations
2001	Alternative Route Analysis document published
2004	New start…..

The Cleveland Extension was included as part of the CVSR Master Plan, which was followed by several rounds of negotiations with both railroads (CSX Transportation and Cleveland Works Railroad) affected by the passenger rail operations on the selected route. The potential of CVSR service to reach downtown was highlighted during the demonstration run to Tower City (see Photo 1). When CSX discontinued the negotiations and concentrated on their Conrail acquisition, CVSR turned its attention to the southern extension from Akron to Canton. Even though serious efforts were underway to extend train service 25 miles south of the CVNP, a study was conducted on the northern end of the tracks to take a detailed look at all of the potential routes to reach downtown Cleveland. The results of this *Alternate Route Analysis* study [2] confirmed that the route

selection from 1990s was the most effective, and probably the most realistic alternative to reach downtown Cleveland.

Photo 1. CVSR train at Tower City during demonstration run in 1995

3.2. Preferred route

The preferred route for the Cleveland extension is presented in Figure 5. The advantages of the route are that it stays in the valley, is in close proximity to the planned Towpath Trail extension to downtown Cleveland, is most direct, has limited conflicts with freight rail operations, and doesn't require significant new infrastructure. As mentioned earlier, there are several challenges to overcome in the project and they are mainly related to insufficient infrastructure conditions and active freight operations.

Appendix B includes a memorandum and three aerial maps that present the preferred route and alternative approaches to accomplish the project. Based on preliminary analysis, Alternative 2 with a combination of physically and temporally separated freight and passenger operations is the most feasible solution. Therefore, the majority of current efforts concentrate on that alternative. The selection of this alternative is a step forward, but by itself doesn't address many important questions, such as:

- Will the passenger rail operations be secured by obtaining track rights, by leasing the tracks, by acquiring the tracks or as a combination of all three?
- Who will handle freight operations? Liability and labor requirements may cause insurmountable challenges for CVSR and CSX operations on same tracks.

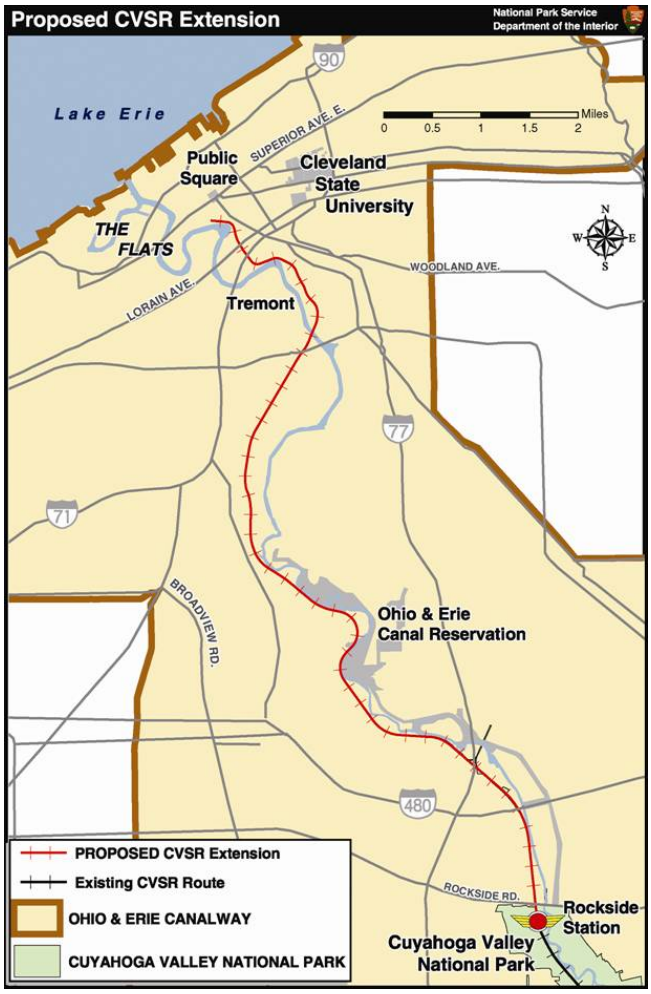

Figure 5. Proposed Extension Route to Downtown Cleveland

3.3. Project status at arrival

After a few years of inactivity, 2004 marked a fresh start for the Cleveland Extension project. At the time of the scholar's arrival in July, four new groups had been formed to assist in the project. Those groups were the Cleveland Extension Working Group and Advisory Councils in Cleveland, Akron and Canton.

The Working Group is responsible for maintaining progress on the technical work needed to realize the Cleveland Extension. Representatives from affected industry and business, property owners, city and county governments, and transportation agencies assist the key

organizations by using their contacts and expertise to facilitate progress through critical path junctures of the project.

The Cleveland Advisory Council is made up of representatives from relevant governmental bodies, businesses, venues, educators and non-profit groups. The Council's mission is to aggressively market Cleveland to prospective CVSR riders, to work with local venues to encourage tourism packages that include dining and overnight accommodations, and to promote CVSR for educational purposes in the community.

3.4. Progress reports

As mentioned in the preface of this report, the scope for the scholar was to work with the NPS, CVSR, and other organizations, businesses, and city officials in the Cleveland community to analyze the wide variety of challenges associated with the Cleveland Extension. The following sections discuss key topics and activities addressed and summarize the accomplishments during the assignment.

3.4.1. Management and coordination

One of the most important and time-consuming responsibilities was the coordination effort between CVSR, CVNP and other stakeholders. It was necessary for the project's success that each stakeholder understood the main goals and challenges and had a clear vision of the project direction and strategies. Without this coordination effort, a lot of energy could have been wasted on activities without real significance or even on ones with more negative than positive impacts.

Most coordination occurred through the Working Group members. The primary goal was to identify the key project challenges, to develop a plan of attack for the project, and to suggest solutions for the project. A flowchart in Appendix C presents the technical tasks that were identified to be critical for the progress. In addition to technical tasks, the **A**ll a**B**oard for **C**leveland (**ABC**) Campaign was initiated to secure the necessary public support for the project. The ABC Campaign will be discussed in more detail later in the report.

3.4.2. CSX coordination

One of the key activities throughout the project will be the coordination with the current track owner, CSX Transportation. Since CSX is the current property owner, no plan of CVSR's can be implemented without approval from CSX. This coordination was initiated through informal discussions and a letter in October 2004 (see Appendix D). The communication since has been infrequent and responses from CSX have not provided significant insight. CSX has assigned a coordinator for the project and has provided general guidance for next steps. CSX's advice is to provide a conceptual level plan of alternatives for their review, followed by a coordination meeting. That plan should address the four criteria presented below, which are used by CSX to judge all of their projects;

- Safety
- Liability
- Capacity
- Compensation

The work for developing the conceptual plan has been started through infrastructure and freight service evaluations.

3.4.3. Liability and legal issues

In order for CVSR to run passenger trains on CSX-owned tracks (currently used solely for freight transportation), CVSR would need to purchase a $500 million liability insurance policy. Clearly, the cost of such a policy is beyond the means of a not-for-profit organization. Alternatives to be explored to address the liability issue are 1) working with CSX to encourage them to reduce their requirements; and 2) having CVSR added under the Amtrak liability umbrella through legislative language.

There is a very limited number of examples of reduced passenger liability on Class I[1] freight railroad tracks. Three examples are 1) Hillsborough Area Regional Transit (HARTline), which operates TECO Line Streetcar [3] at Tampa Bay, Florida and has been able to negotiate liability limits with CSX down to $100 million and 2) Utah Transit Authority (UTA) [4], who has negotiated limits to $20 million with Union Pacific for their new commuter rail project. The latter one was part of a bigger package deal including significant track purchases by the commuter rail agency. 3) The State of Virginia set up federal legislation to limit the liability to $200 million.

3.4.4. Infrastructure evaluation

In March 2005, PB Transit & Rail systems, Inc. (PB) was hired to perform preliminary level evaluation of the infrastructure on the selected route. This evaluation includes

[1] U.S. Class I railroads are defined as line haul railroads with operating revenue in excess of $277.7 million.

conceptual level drawings of the necessary modifications in track arrangements, cost estimates for infrastructure upgrades and an extensive photo log that describes some of the expected challenges through pictures and notes. It also highlights and provides recommendations for more detailed investigations of critical infrastructure and potential environmental challenges. The report and accompanying drawings, together with the freight evaluation, will form the foundation for the conceptual plan for CSX review. As mentioned in Section 3.2 (Preferred Route), the infrastructure evaluation concentrates on the route that includes a combination of physically and temporally separated passenger and freight operations.

3.4.5. Freight service evaluation

A draft Request For Proposals (RFP) for evaluating current freight services on the preferred route (see Appendix E) was developed with the help of Lou Jannazo from Ohio Rail & Development Commission (ORDC). Since funding to carry out the evaluation wasn't available, a continuing effort was started by the Working Group members in March 2005 to collect information on train frequencies and freight quantities along the route, especially on segments where potential acquisition of tracks from CSX may be needed (see Shipper Survey in Appendix E).

3.4.6. ABC Campaign

All a**B**oard for **C**leveland (**ABC**) Campaign is the initiative to educate the community about the Cleveland Extension project and to gather necessary community support and contributions. The mission of the ABC campaign is to:

Establish understanding and develop broad support for extending the current excursion passenger rail service of Cuyahoga Valley Scenic Railroad (CVSR) between downtown Cleveland and Rockside Road.

A PowerPoint presentation was developed by the scholar as the first step of the campaign. The presentation slides are included in Appendix F. The ABC presentation provides a comprehensive review of:

- History of CVSR, CVNP and important partnerships
- Development of rail service in the Valley
- History and vision of the Cleveland Extension project and
- Suggestions of different ways to support the project

The presentation is being delivered to business and civic leadership in the area to gain their endorsement and support for the project. In addition to the presentation, other tools such as public forums, newsletters, media days, and special events will be used for the ABC Campaign in order to gain broader support for the project.

3.4.7. Project funding

Funding is one of the key challenges for the project. The Transportation Scholar program provided a full time paid employee for the project during the initial stages. The Scholar played key roles in most project activities and was able to build momentum for the project. Since there has not been dedicated funding for the project, the workload has fallen mainly back to the personnel of CVSR and CVNP after the scholar's departure.

Outside the Transportation Scholar program, there has been limited funding for the project. The recently finished infrastructure evaluation was funded through a donation from Forest City Enterprises. In February 2005, CVSR together with the Cuyahoga

County Planning Commission (CPC) applied for a $75,000 planning grant from the Northeast Ohio Areawide Coordination Agency (NOACA). The grant application is included in Appendix G. The recipients for this grant will be selected in mid-May (funds will be released in July) and if received, acquired funds will be used toward completing the conceptual plan and negotiating with CSX Transportation. CVSR is currently applying for the local match required by NOACA as well as for other additional funds from several local foundations.

$1 million has been reserved in the State budget since the 1990s for funding the Cleveland Extension project. This funding excluded, there is no secured funding for project implementation. Recently, a *Transit in Parks* pilot program was introduced by the House Transportation and Infrastructure committee. The goal of this program will be to develop transit in National Parks with the goal of improving mobility and reducing congestion and pollution. Once approved, it will provide several million dollars annually for transit improvements in parks.

4. Recommended next steps for the Cleveland Extension

Transportation projects at their planning stages are dynamic processes with continuously changing directions. The recommendations presented in this report are based on the current project status and expectations. They may become inaccurate or outdated as the project moves forward and should be re-evaluated regularly.

4.1. Management, coordination and project funding

Due to their close relationship at the moment, recommendations for management and coordination activities and for project funding are combined. As mentioned in the

previous chapter, there is no additional funding in-hand for hiring additional staff or consultants to assist with the project in the absence of the Transportation Scholar. This is a threat to the project progress. CVSR and CVNP personnel responsible for the project already have full workloads. They also possess limited experience in working with freight railroads, which is essential for some of the tasks.

The most critical project need at the moment is to secure the services of a Technical Manager (TM). The ideal TM candidate would be an individual or a firm with expertise in similar railroad projects and with capabilities to make sure the project continues in the correct direction. TM will be responsible for:

- Coordinating meetings with all the essential players
- Attending and managing Working Group meetings
- Functioning as the technical interface between CSX and all the project partners
- Reviewing plans
- Writing RFPs
- Handling some administrative tasks.

Constant coordination between the TM and CVSR-CVNP management is necessary. The TM position does not require full time effort, but should rather be arranged as a contract paid on an hourly basis.

If CVSR is selected to receive funding from NOACA, an immediate coordination meeting should be arranged between CVSR, Cuyahoga County Planning Commission,

and NOACA to clarify the restrictions for using the grant. If allowed, a portion of the grant money should be used for the TM contract. If any other funding becomes available, the TM position should have the priority over other project needs. For immediate needs or in case project funding seems unlikely to materialize, a potential to cover some TM responsibilities through technical assistance from ORDC or NOACA should be investigated.

For contractual reasons, or to avoid unnecessary management layers, it may be necessary to also use the TM for some technical work, such as finalizing the freight evaluation and developing conceptual plans for CSX review. In all funding alternatives, it is important that sufficient time is spent to develop a management structure and define clearly responsibilities of all key members.

The importance of the Cleveland Extension Working Group should not be understated. Encouraging participation by the group members in the project activities should have high priority. Group members possess a wide variety of untapped expertise. An evaluation should be conducted to determine how that expertise could best be used to assist the project. Based on the evaluation, subcommittees could be formed to initiate work on specific topics.

Since the only reserved funding for the project is in the State budget, restrictions for using those funds should be clarified from the State of Ohio. Securing additional funding will be a major project task and lengthy lead times for funding to materialize should be

expected. Development of strategies to secure funding should be initiated as soon as possible, perhaps with the assistance of Working Group members.

4.2. CSX coordination

Recent discussions with CSX have led to a conclusion that a coordination meeting with CSX should occur sooner rather than later. It is important to obtain CSX's guidance early in the planning process to confirm that the main concerns of CSX are addressed during the planning. As soon as infrastructure and freight evaluations have been finalized, a conceptual plan addressing CSX criteria should be developed and submitted for CSX review, followed by a coordination meeting. It is important that appropriate expertise and funding is secured at this point, since the meeting will have to be followed by action to keep the project on CSX's radar screen.

4.3. Liability and legal issues

As mentioned in the previous chapter, the liability effort should concentrate on getting CSX to reduce its requirements. Since CSX will be wary about setting a precedent for simply allowing for reduced liability coverage, investigations on ways to include reduced liability in the overall business deal should be considered. As a first step, it is recommended that existing examples of reduced liability, such as the TECO Line Streetcar in Tampa, be studied in more detail. At some point, it may become necessary to consult with legal experts for their recommendations in approaching CSX in liability issue.

4.4. Infrastructure evaluation

The recently finalized infrastructure evaluation includes several recommendations for next steps in infrastructure investigations. Some of these recommendations include:

- Investigation of the legal status of service roads along the tracks.
- Comprehensive title searches and land surveys to fully define CSX-owned properties.
- Detailed walking inspection of tracks and bridge structures to provide more accurate cost estimates.
- Defining the level of environmental studies required for the project.
- Specific recommendations regarding track layout changes in the vicinity of the Clark yard.

It should be emphasized that the cost estimate provided as part of the infrastructure evaluation excludes significant portions of the project costs, such as potential property and operations purchases from CSX. In addition, it reserves only a moderate amount for improvements on a bascule bridge that carries tracks over the Cuyahoga River (see Photo 2). The author speculates that total project costs will be higher than the cost estimate presented in the infrastructure evaluation and wouldn't recommend using this number directly for capital

Photo 2. Lift Bridge over Cuyahoga River

cost estimates.

4.5. Freight service evaluation

The basis for evaluating the feasibility of freight traffic on the route will be current freight operations data collected during Shipper Surveys. The evaluation has two goals:

- To evaluate the financial feasibility of current and future freight operations on route.
- To develop passenger and freight services schedules that provide needed capacity for each type of operation. This means that existing freight schedules will be adjusted to provide windows for CVSR passenger traffic on the tracks.

It is recommended that a consultant with previous experience in similar tasks is hired to perform the evaluations and to develop the evaluation report. Data collected during the Shipper Surveys should be provided for the consultant's use. The goal of developing schedules that accommodate both types of traffic (passenger and freight) requires CVSR to determine their expected service frequencies to Cleveland before the evaluation is done or in cooperation with the selected consultant.

The draft RFP for evaluation was developed before Shipper Surveys were initiated. Before final RFP is released, it needs to be modified to reflect the current status or the project. Tasks already accomplished should be either removed or replaced with other relevant ones.

4.6. ABC Campaign

The ABC Campaign is probably one of the most important aspects of the Cleveland Extension project. Convincing the public and local decision makers about the importance of the project is a requirement for receiving any significant funding for implementation. For a multi-million dollar project such as this, local support is essential. The development and utilization of public forums, newsletters, media days and special events should start complementing ABC presentations as soon as possible.

Publicity and availability of public information is also important to attract local resources to the project. A poster presented by the Transportation Scholar at the annual conference of Transportation Research Board (see Appendix H) and an interview published recently in several local newspapers (see Appendix I) led to several contact requests and phone calls from individuals interested in assisting with the project. It is recommended that a designated web page be developed to provide public access to project information. This web page should contain a variety of project documents, such as the ABC Presentation slides and TRB poster. In addition, a project summary similar to the summaries developed by Alaska Railroad for their projects [5] should be developed and posted for the Cleveland Extension project.

5. Other research topics and recommendations

Even though most efforts during the assignment concentrated on the Cleveland Extension project, several other topics were also researched. The following sections present the outcomes of this additional research and recommendations for future work.

5.1. CVSR service development

Even though service development is an important piece of the Cleveland Extension project, the results are provided under the heading of other research topics. This is because current services should be continuously evaluated regardless the final result of the Cleveland Extension project. There are differing opinions on the priorities and directions of developing service. The following paragraphs try to provide some background for the reasons behind these differences and make recommendations that have the potential to reduce them.

The purpose of the scheduled CVSR service is twofold; the first is to provide rail excursions and the second is to provide alternative transportation. These two service types have somewhat different needs. Table 2 provides a short summary on the importance of different criteria for each type of service. Excursion passengers tend to consider the railroad as an experience by itself and riding the train may be the sole purpose of their trip. Time spent and cost of service are not necessarily as high in importance as are the overall experience and quality of service. In addition, excursion riders have fewer “demands” regarding when the trains run. Conversely, those riders who use trains for alternative transportation have a somewhat different set of expectations. They are using the train as a method of transportation from point A to point B, for example from the train station to a particular point of interest. Their primary concerns are the proximity of the station, the reliability and frequency of service, the cost, the ease of use, and the overall time required to get from point A to point B.

Table 2. Differences between Excursions and Alternative transportation

Criteria	Importance of Criteria	
	Excursion Service	**Alt. Transportation Service**
Service frequency	Low	High
Cost of service	Low	High
Service quality	High	Low
Attractiveness of ride	High	Low
Duration	Low	High
Ease of use	High	High
Extent of service	Low	High

Currently, most CVSR revenue comes from excursion and special event trains. Therefore, services are designed to meet the needs of these passengers. Opportunities for alternative transportation are provided through Trail & Rail service, which allows CVSR passengers to bike or hike on the Towpath Trail in one direction and return by rail (see Photo 3), and through excursion trains that transport passengers to venues along the corridor. However, neither of these services provides comprehensive coverage of the route and schedules are mainly limited to one or two alternatives per day. Since service types that follow the general expectations of alternative transportation riders have been limited to date in Cuyahoga Valley, it is difficult to evaluate the potential for such services.

Photo 3. CVSR Trail & Rail service

Even though both partners, CVSR and CVNP (or NPS) have the same objective of providing quality passenger rail service for as many visitors as possible, their priorities are somewhat different. For NPS, providing a means of alternative transportation and accessibility to the park is the first priority and has been the primary justification for past and present investments. For CVSR, the priorities are outlined in their mission statement. They include providing educational and recreational programs, providing linkages in the Ohio & Erie Canalway and preserving historical equipment and using it in public operations. In addition, CVSR has to maintain their operational feasibility, so each service type is also weighed against its potential to generate revenues.

Since each organization is indispensable for continuing passenger service and each organization complements the other, every effort should be made to design services that will meet the primary goals of each partnering organization now and in the future. It is recommended that CVSR and NPS develop and commit to a joint strategy that outlines the goals and priorities for future passenger rail services in the Valley. A partnership that meets the needs of each organization will make the commitment to the goals even stronger and will allow each organization to bring the full array of their resources (financial, technical, and personnel) to the partnership.

5.1.1. Alternative service schedules

There are several critical issues that should be addressed, while developing service schedules. Some of them are:

- Extent of service. As the network grows longer, services can cover only portions of it. The most important origins for excursions and main destinations from each location should be defined and convenient services between those locations secured.

- Speed. Longer routes require more time, unless speeds are increased. If the overall time of the excursion grows too long, especially on services that include layovers, the interest for service will fade. Due to topography and other constraints, speed increases in the valley are limited, but the potential should not be totally discarded. In addition, overall travel time can be improved without physical speed increases, for example through increased grade crossing protection.

- Service frequency. Frequency can be increased either by adding new service or by speeding up the existing service. As mentioned earlier, sufficient frequency is important for alternative transportation users, but it also improves the service for excursion passengers by providing them more alternatives from which to select.

- Potential delays. Delays can become a major nuisance on a single track network with a limited number of sidings where trains can meet. On CVSR's 51 miles of track, there are only two operational sidings. Short layovers at end terminals may further increase the risks for delays. The Cleveland Extension project has two specific locations that may cause operational delays for service. These are RD Tower and the lift bridge over Cuyahoga River. The possibilities for delays in these areas should be well defined and their effect on the performance of the overall network analyzed.

Several alternatives have been developed to provide service to downtown Cleveland. Some alternatives propose separate shuttles from Rockside Road, while maintaining existing CVSR service on the current route. Other alternatives recommend adjusting all current services to meet the needs of longer network. Even though all alternatives should be further evaluated and are equally important, this report concentrates on alternatives that adjust all services.

Appendix J presents schedule diagrams and a technical memorandum for several service alternatives. The objective of the schedule development was to accommodate the needs of excursion and alternative transportation passengers simultaneously. The current routes for excursion services were maintained, but the operating philosophy was modified to meet the expected needs of alternative transportation passengers. A range of different train speeds was used to investigate the relationship between trip times and speed. All developed alternatives can be found in Appendix J.

The alternatives presented in Appendix J provide one vision for future rail services in the Valley. It is recommended that as part of their joint strategy, CVSR and CVNP develop their own vision through a similar exercise. This will provide a graphical representation of future CVSR service that meets the goals of each partnering organization.

A sample schedule diagram is presented in Figure 6. The technical memorandum in Appendix J provides a detailed description of the assumptions used in the development process, outlines the potential advantages and disadvantages of the proposed schedules,

provides estimates for operational costs, and summarizes concerns raised by the Operations Manager of CVSR.

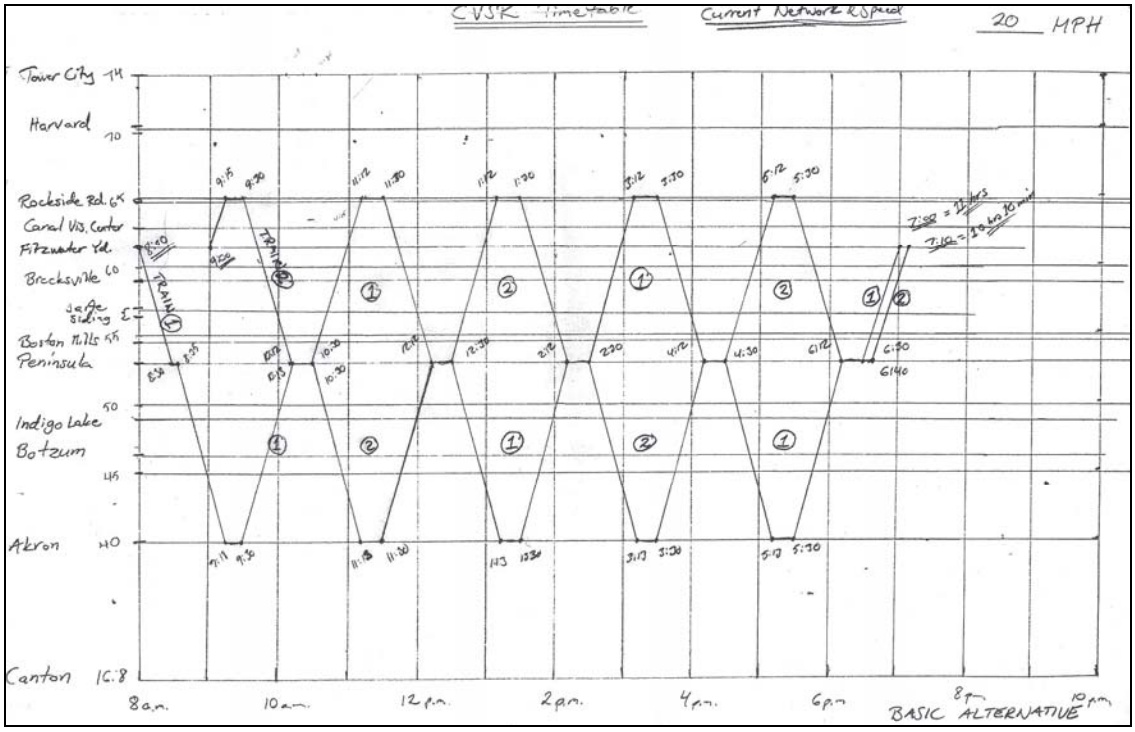

Figure 6. Sample schedule diagram presenting Basic Alternative

Most alternatives (see Appendix J) include proposed service to downtown Cleveland, but the Basic Alternative presented in Figure 6 was limited to the existing route and represents the base scenario. Table 3 provides a comparison between the current and Basic Alternative scenarios on the existing route (between Rockside Road and Akron, OH). The most significant differences between current service and the Basic Alternative are that 1) in the Basic Alternative all customers have access to all locations throughout the route, regardless the train they select, and 2) in the Basic Alternative the trains are providing constant service without extended layovers at end terminals. The comparison reveals that even though the amount of train miles in passenger operation is almost doubled, the operational costs have increased less than 50%. This is due to the fact that

during the layovers in current service, locomotives are still running and crew is still getting paid. In the Basic Alternative, this time is used for active passenger operations.

Table 3. Current versus Basic Alternative service scenarios

Criteria	Type of service	
	Current	**Basic Alternative**
Number of trains	2	2
Daily departures from		
- Akron	2	5
- Rockside	2	5
Combined duration of train operations	14.5 hours	21 hours
Overall waiting time at terminals (15 min. turnaround time excluded)	4 hrs 15 min	-
Miles of passenger service	124	238
Estimated Operational costs*		
- Personnel	$1,600	$2,400**
- Fuel	$1,120	$1,470
- **Total**	**$2,720**	**$3,870**
Extent of service (RT = Round Trip)	1 RT Rockside to Akron 2 RT Rockside to Peninsula 1 RT Akron - Peninsula	3 RT Rockside to Akron*** 4 RT Rockside to Peninsula 4 RT Akron to Peninsula

* Unit costs are based on information provided by CVSR personnel
** Assumes 12 hour assignments for each crew member
*** Requires train change in Peninsula

5.2. Audio tour

Traditionally, interpretive services on-board CVSR excursion trains have been the responsibility of park rangers. Due to downsizing of the park workforce these services have been shifted to train volunteers, who provide interpretive services when they are

able and are not busy fulfilling other responsibilities on the train. With the current budget situation, it seems unlikely that park rangers could be reinstated on trains any time in the near future. Recently a question was raised to replace current services with and an automated individual audio tour.

There are several technologies available for audio tour purposes. The basic principle is to use individual receivers (headphones or hand held devices, see Photo 4) that can be rented for a fee from concession cars or stations. The timing of the interpretation is either the responsibility of each customer or is automatically directed by a Global Positioning System (GPS) sensor installed in the train and along the tracks. With GPS, different train speeds or unexpected stops would be irrelevant for timing of interpretation.

Photo 4. Hand held audio tour equipment

There are several advantages to audio tours. Some of those are:

- Creating a source of earned income through renting the tour to passengers.
- Reducing the workload of volunteers by taking away the interpretation responsibility

- Improving customer satisfaction by providing an option to ride the train with or without interpretation.
- Providing consistent, professionally developed, high quality interpretation.

Audio tours have become a common feature in many venues today and are significant revenue generators. Alcatraz in San Francisco is probably the most famous example of a successful implementation of an audio tour.

The challenges are mainly related to implementation and funding. A moving train makes the system more complicated than a fixed location. Since CVSR offers several types of excursions, analysis is required to clarify the interpretive needs of each service. Metallic train cars may also cause some difficulties for GPS equipment. However, similar systems have been developed for many transportation services, so technology should not be an obstacle for implementation. Despite an expressed concern about using high level technology for interpretation during a heritage train ride, it should be recognized that there are several examples of historical locations, including Alcatraz, that use technology to provide visitors an exciting way to become acquainted with history.

There are several audio tour developers in the U.S. One developer was contacted to obtain some preliminary cost information regarding a system for the train. Their preliminary cost estimate for the audio tour is as follows:

- Production of 2 hours of content, $55,000
- Individual receivers (headphones), 90 per train for 3 trains, $30,000

- Radio transmission system, $15,000 per train

Unfortunately, a cost estimate for the necessary GPS components was not readily available and should be added to the total costs.

As mentioned, implementation cost is one of the major challenges for such system. Some developers approach new projects as revenue-sharing opportunities, where they cover some of the initial investment costs and receive a portion of the revenue recovered from each customer after the implementation. The author believes that revenue-sharing is the preferred implementing strategy and should be investigated further. In addition, guidance should be requested from organizations who have successfully implemented similar systems. If developers don't indicate interest in revenue-sharing, it is recommended that cost-benefit calculations be prepared prior to any further development. The current number of excursion passengers (approximately 50,000) provides a fairly limited revenue base for CVSR. Proper cost recovery options need to be determined prior to implementation of an audio tour program.

5.3. Computerized ticketing system

Current methods for purchasing CVSR train tickets are in advance by mail or phone, or as a direct purchase at train station 30 minutes prior to train departure. Advance tickets can only be purchased during weekdays. During the main season, ticket sales and customer inquiries are handled by two full time staff members, whose current workload leaves no room for expansion.

Despite the increased number of services offered by CVSR, annual ridership has remained at 100,000 (+/-) passengers during the last few years. The reason for this has not been determined, but since equipment capacity has not reached its limit, it can be speculated that ticketing services may have reached maximum capacity. The agents can only handle a limited number of phone calls per day and any additional customers trying to get through are left without service. The current system provides no methods for counting unsuccessful ticket inquiries during the weekdays or weekends. Limits in the ticketing process also raise the question of increased staffing needs for each new customer; if 100,000 customers require two full time agents for ticket sales, will 200,000 customers require four full time agents?

The main reason to investigate computerized (or automated) ticketing is to evaluate if such a system could provide relief for existing capacity constraints in ticket sales. In addition, a computerized system might remove the limits for customer expansion and the reduced need for additional staff time per customer could provide significant administrative cost and time savings.

One alternative for such a system is a central database located on a main computer at CVSR headquarters. This database would consist of the necessary software for reserved seating, Internet ticketing, customized graphical interfaces, and credit card processing modules. Actual ticket sales would be handled through permanent ticketing offices, self serve kiosks (see Photo 5), and Internet extensions that could be accessed either by

outside vendors and agents or by individuals in households. An ideal location for self serve kiosks would be at CVNP visitor centers.

Photo 5. Self serve ticket kiosk

A computerized ticketing system would provide several advantages, such as:

- Producing administrative cost savings per customer. The amount of administrative time per customer would be reduced because customers could get information on-line and CVSR staff would not have to spend as much time on the phone per customer.
- Removing limitations in the number of agents. Since the system utilizes the Internet, each individual or business with Internet access becomes an agent and can purchase tickets simultaneously.
- Removing time limitations. Customers can purchase tickets any time of the day, any day of the week. Ticketing service expands from 40 hours per week to 168 hours per week.
- Reaching all current and potential CVSR customers. Unlike the audio tour, computerized ticketing can be used for any train, including special event trains.
- Improving report production. Since all data is stored in one database, it will be easy to print reports to analyze the success of different services or to develop tabulations for management reports.

- Providing complete control over operations. Ticketing agents will be able to see when trains start filling up and can then request additional cars from the operations department; the operations department can see in real time the passenger requirements of each train.
- Providing free marketing. With the Internet capability, any agent or individual in the U.S. can become a "CVSR agent" and function without time constraints.
- Attracting younger generation. A significant portion of today's population uses the Internet exclusively for travel planning and ticket purchases.

Just like with audio tour, the primary challenge is the initial implementation cost. Some preliminary cost information on the computerized ticketing was received from one developer. The final implementation and maintenance costs can only be determined once detailed system requirements have been identified, but the preliminary cost estimate for software, hardware and installation of the system developed for approximately 100,000 passengers is $60,000-65,000 and includes the following:

- 1 main server computer
- 4 sales station computers
- 2 self serve ticketing computers
- Software development for reserved seating, Internet ticketing, customized graphical interfaces and credit card processing modules for both Internet and permanent locations

The annual maintenance costs include ticket stock, software and hardware maintenance, and DSL, cable or Internet costs. The preliminary cost estimate for annual maintenance is $5,000 per year.

Other than the cost of implementation, there are few, if any, disadvantages of the system. A concern of 'worse customer service' was raised as a potential drawback. Since the purpose of the system is not to replace the phone ticketing service, but to complement it, the system should enhance customer service by providing another alternative for trip planning and ticket purchasing. Customers would still be able to call CVSR directly, for tickets or for information, but the amount of staff time dedicated to ticket sales by phone is expected to be significantly less.

Out of all initiatives discussed in this report, the author believes that the computerized ticketing system has the most potential for immediate financial and operational rewards and improved customer satisfaction. Therefore, it should be on the top of the priority list and immediate actions should be taken to investigate the system further by developing detailed system requirements and performing cost and benefit analysis.

5.4. Marketing survey

A very limited marketing survey was carried out in the early 1990s, but a comprehensive market survey and analysis has not been conducted by CVSR. Therefore, a lack of information exists about what motivates current and potential audiences to take advantage of the unique historic and recreational transportation service offered by CVSR.

Valuable information would be obtained by getting answers to these (and other) questions:

- Why do some park visitors ride the train while others don't?
- What is the percentage of repeat ridership?
- How many people within 50 miles radius even know about the service?
- Why doesn't Akron service attract more riders, even with subsidized ticket prices?

Since CVSR services have changed considerably in the last 20 years, and even more changes are being considered, including extending service to downtown Cleveland, a thorough feasibility study should be a very high priority. Decisions on future services to Cleveland should rely on estimates developed from solid analytical data. Recent service improvements have been lacking data to back them up and have been forced to rely on subjective opinions of decision makers. Sufficient data not only reduces the subjectivity of decision making, but has also potential to reduce differences of opinions between individuals by providing a better understanding of system needs.

There have been two recent initiatives to gather information on current or potential CVSR customers (see Appendix K). 1) Kent State University students interviewed CVSR riders in fall 2004 and provided a summary of findings and 2) two questions were submitted recently to a phone survey for Summit county residents. While these efforts are a step to right direction, they provide an insufficient amount of data to perform any analytical evaluations or forecasts. Getting meaningful results requires an effort that is

beyond the capabilities of volunteer university students or staff members without professional expertise and available time for marketing surveys. It is recommended that a professionally designed survey be a high priority.

The survey should try to reach both current and potential riders. Probably all CVSR customers are discretionary riders, who make their decisions based on a set of criteria that includes categories such as cost, duration, and convenience of service. Therefore, the survey should include questions that provide information on customers' sensitivity to these categories.

A grant should be sought in order to fund the survey, even though CVSR has many other competing needs for grant money. To balance out the associated costs, the survey could be accomplished in phases.

5.5. CVSR Management study

The nature and extent of CVSR operations has changed significantly during the last two decades. Growing from 20,000 annual customers to 100,000 is a great change by itself. Even though the organization naturally adjusts and changes with the growth, it seems to be fairly common practice for businesses to re-evaluate their management and organizational practices and look for improvements in productivity and operations. This differs from the CVSR 5-year business plan (currently under revision) by concentrating more on the functionality and structures within the organization. It would be an exercise in corporate planning and the types of analysis could include setting performance goals, potential restructuring and clearly defining cost categories (administrative, operational,

overhead). One economical way to accomplish such a study would be to involve a local MBA or other business student.

5.6. Cuyahoga Valley Transportation Study

The congestion in Cuyahoga Valley National Park is currently fairly limited. Congestion mainly exists at the most popular parking areas (such as Peninsula) during the peak seasons. However, as the popularity of the park and the Towpath Trail increases, congestion issues may become more relevant. These congestion issues could be evaluated and addressed proactively. One recommendation would be to seek funding for another Transportation Scholar to develop an assessment of transportation issues within the park and to research different alternatives to alleviate the foreseeable challenges. These alternatives might include introduction of limited parking or parking fees (which is already being investigated), providing transit services or expanded rail services, etc.

6. Conclusions

The goal of this report was to provide a document that assists the stakeholders in their continuing efforts for Cleveland Extension project and in overall development of CVSR's excursion passenger rail service in the Ohio & Erie Canalway. Specifically, the report tried to respond to following questions:

1. How has rail transportation developed in Cuyahoga Valley and how does it fit to the regional transportation scheme?
2. What is the current status of Cleveland Extension project?
3. What are the recommendations for future activities in Cleveland Extension project?

4. What other initiatives have the potential to improve passenger rail operations in the valley?

Chapter 2 and *Progress & Promise: Developing Excursion Passenger Rail Service in the Ohio & Erie Canalway* in Appendix A discussed the development and importance of CVSR rail services. Chapter 3 provided a history and current status of the Cleveland Extension project, which was followed by recommendations for next project steps in Chapter 4. Chapter 5 discussed other rail related research that was initiated during the scholar's assignment and provided recommendations for carrying those efforts forward and for prioritizing them. It also provided ideas for new topics worth exploring to further improve rail transportation in the Canalway.

The current system provides an excellent framework for continuing development of rail service in the Ohio & Erie Canalway. A 500% percent ridership increase in ten years is an achievement that would make any transportation provider proud. The maximum capacity of the route or equipment has not been reached to date, so further increases in passenger levels can be accommodated. The key is to be able to identify the types of demand and to develop service in a logical and cost effective way, so each individual improvement is rewarded either financially or by an increased level of customers and their satisfaction.

The Cleveland Extension project has been identified to have the highest potential for improved passenger service and therefore has a high priority with the stakeholders. It is a

complicated project, but it seems that the changes in Class 1 freight railroads' priorities to concentrate more on long haul traffic and to divest their local operations for smaller railroads provide a better foundation for success now than in 1990s. The next steps, such as finding solutions for key project challenges, including funding, will require significant effort from a multitude of stakeholders. It will be important to develop strong project management procedures and clear strategies to maintain the overall vision for the project and to guarantee that none of the critical activities is overlooked.

Even though Cleveland Extension project has a high priority, topics presented in Chapter 5 should not be ignored. These improvements are significantly smaller is scale and the rewards from each can be realized immediately. Constant development is a requirement in today's business environment, even in the not-for-profit sector, and these improvements have the potential to maintain forward progress and strengthen the justifications for the Cleveland Extension.

Partnerships have formed the foundation for rail development in the Ohio & Erie Canalway. During the assignment it became clear that the involved partners are a unique mix of individuals and organizations who understand the importance of transportation and whose commitment to continual improvement of the system has been extraordinary. None of the organizations has the capabilities to carry the burden of the whole system by themselves, so partnerships will continue to be the main asset for further development. It is of utmost importance that collaboration and co-operation between partners remains strong in the future. Clear strategies and goals for service should be developed to

facilitate their commitment and to reduce the potential for conflicts and frustrations. Smooth relationships secure that all the efforts are directed toward important activities and none of the limited resources are wasted in the process.

7. Acknowledgements

I would like to thank the two organizations responsible for the Transportation Scholar Program, the National Park Foundation and the Ford Motor Company, who made it possible for me to have this unique 9-month experience at Cuyahoga Valley National Park.

Like the development of rail service in the Ohio & Erie Canalway, the accomplishments during my assignment were a genuine group effort. Numerous Cuyahoga Valley National Park and Cuyahoga Valley Scenic Railroad staff members assisted in the activities through their technical expertise, ideas and enthusiasm. I would like to thank all the personnel of CVNP and CVSR for their care and commitment toward my work and personal well being during the assignment. I would like to thank specifically two CVNP individuals; Jennifer McMahon, whose constant concern for my personal and work “comfort” made the transitions to new work and new location feel like a “child’s

play" and Ralph Wagnitz, whose assistance in developing a multitude of graphics and maps was indispensable.

I would also like thank all the members of the Cleveland Extension Working Group and other individuals who are involved in the Cleveland Extension project. It was a pleasure to work with you and now it is your turn to pick up where I left off. Keep up the good work on the project. All Aboard!

8. References

1. *The Ohio & Erie Canal National Heritage Corridor Management Plan*, prepared for the Ohio & Erie Canal Association, June 2000.

2. *Alternate Route Analysis – Extension of Excursion Passenger Rail Service to Downtown Cleveland*, prepared for National Park Service by Bergmann Associates, February, 2001.

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Appendices

Appendix A - Progress & Promise: Developing Excursion Passenger Rail Service in the Ohio & Erie Canalway

Appendix B – Technical Memorandum and Aerial Maps for the Cleveland Extension project

1. Technical Memo - CVSR Service Extension to Downtown Cleveland
2. Map 1
3. Map 2
4. Map 3

Appendix C – The Cleveland Extension project flowchart

Appendix D – Project initiation letter to CSX Transportation

Appendix E – Draft RFP for Freight Evaluation and Shipper Survey forms

1. REQUEST FOR PROPOSAL : CUYAHOGA VALLEY SCENIC RAILROAD "ALL ABOARD FOR CLEVELAND" PROJECT DEVELOPMENT SHORT LINE RAILROAD INVESTIGATIONS

2. CVSR Cleveland Extension Project – Shipper Survey

Appendix F – Slides of All aBoard for Cleveland (ABC) PowerPoint presentation

Appendix G – Grant application for NOACA

Appendix H – Project poster presented at TRB Annual Conference

Appendix I – Scholar interview in local newspapers

Appendix J – Proposed CVSR service schedule diagrams and memorandum

Appendix K – Kent State marketing survey forms and analysis and questions submitted to Summit poll

1. CVSR Preliminary Report
2. Hiker Questionnaire
3. Questionnaire
4. Summit Co. Poll